

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/620,748 §
Filed: July 16, 2003 §
Inventors: §
 Mark S. Moir, et al. §
Title: Obstruction-Free §
 Synchronization for Shared §
 Data Structures §

Examiner: Tsai, Sheng Jen
Group/Art Unit: 2186
Atty. Dkt. No: 6000-33800

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants request review of the final rejection in the above-identified application. Claims 1-44 are pending in the application. Reconsideration of the present case is earnestly requested in light of the following remarks. Note that only the primary arguments directed to the independent claims are presented herein, and that additional arguments (e.g., directed to the dependent claims) will be presented if and when the case proceeds to Appeal.

Section 102 rejection:

The Examiner rejected claims 1-4, 6-10, 12-14, 16-22, 24, 26-33 and 35-44 under 35 U.S.C. § 102(e) as being anticipated by Martin et al. (U.S. Publication 2001/0047361) (hereinafter “Martin”). Applicants note the following **clear errors** in the Examiner’s rejections.

Independent Claims 1, 30, 40 and 43:

1. The cited art clearly fails to disclose wherein the single-target of the single-target synchronization primitive includes a value encoding for an element of the array and a version number encoded integrally therewith, as recited in claim 1.

In remarks directed to original claim 6, the Examiner previously cited paragraph [0012] (CAS), paragraph [0019] (DCAS); paragraph [0123] (CAS, used to ensure a precise count of pushes and pops from each end); and paragraph [0141] (CAS, used to set the node's next field to the distinguishing value RY). Applicants have asserted that none of these passages, or anything else in Martin describes a version number, much less a version number that is integrrally encoded with a value for an element of the array, or that this encoding is included in the single-target of the single-target synchronization primitive used in mediating concurrent execution of the access operations, all of which are required by claim 1. Instead, Martin teaches the use of CAS with a counter unrelated to a version of an array element, and a distinguishing (i.e., fixed) value RY to which a node's next field may be set using CAS.

In the Final Action, the Examiner quotes paragraph [0012] of Martin, which describes the operation of a compare-and-swap (CAS) operation. The Examiner then cites FIG. 1 of Martin, submitting, "figure 1 of Martin shows that elements of the array has a V number, such as V1, V2, V3 and so on." In these remarks, the Examiner seems to be implying that the V numbers illustrated in FIG. 1 may be targets of a CAS operation, and that they represent version numbers. **The Examiner is incorrect.** The Examiner's own citation in paragraph [0012] includes the following, "The operation fetches and examines the contents V of memory at address A." In addition, paragraph [0077] of Martin describes the V numbers of FIG. 1 this way (emphasis added):

Values are represented as "V1", "V2", etc. In general, the value field of the illustrated structure may include either a literal value or a pointer value. Particular data structures identified by pointer values are, in general, application specific. Literal values may be appropriate for some applications and, in some realizations, more complex node structures may be employed.

In other words, the V numbers of Martin represent value encodings for respective array elements, not version numbers. Applicants' claim requires that the single-target of the single-target synchronization primitive includes a value encoding for an element of the array and a version number encoded integrrally therewith. Applicants assert that there is nothing in Martin describing that the V numbers of Martin encode anything other than a value for each element, and there is no mention of a version number in Martin at all. Thus, Martin clearly fails to anticipate the above-referenced limitation of Applicants' claim.

Anticipation requires the presence in a single prior art reference disclosure of each and every limitation of the claimed invention, arranged as in the claim. M.P.E.P 2131; *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984). The identical invention must be shown in as complete detail as is contained in the claims. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). As discussed above, Martin fails to disclose *wherein the single-target of the single-target synchronization primitive includes a value encoding for an element of the array and a version number encoded integrally therewith*. Therefore, Martin cannot be said to anticipate claim 1.

For at least the reasons above, the rejection of claim 1 is unsupported by the cited art and removal thereof is respectfully requested. Independent claims 30, 40 and 43 include limitations similar to claim 1, and were rejected for the same reasons as claim 1. Therefore, the arguments presented above apply with equal force to these claims, as well.

Independent claim 19:

1. The cited art clearly fails to disclose *wherein shared storage usage of the deque implementation is insensitive to a number of access operations that concurrently access the deque*.

In the Office Action mailed May 5, 2008, the Examiner rejected claim 19 for the same reasons as claim 1. In the Response of August 5, 2008, Applicants noted the scope of claim 1 and claim 19 differ. For example, claim 1 does not include a limitation similar to the above-referenced limitation of claim 19. Since the Examiner failed to address the differences between claims 1 and 19, Applicants asserted that the Examiner failed to state a *prima facie* rejection of claim 19. In addition, Applicants asserted that Martin is silent as to the above-referenced limitation of claim 19.

Applicants note that the Examiner again failed to address the differences between claim 1 and claim 19 in the Final Action, including the above-referenced limitation of claim 19.

Therefore, the rejection of claim 19 is improper. For at least the reasons above, the rejection of claim 19 is unsupported by the cited art and removal thereof is respectfully requested.

Section 103(a) Rejections:

The Examiner rejected claims 5, 25 and 34 under 35 U.S.C. § 103(a) as being unpatentable over Martin in view of Rowlands (U.S. Publication 2003/0217115), and claims 11, 15 and 23 as being unpatentable over Martin in view of Latour (U.S. Publication 2002/0078123).

In regard to the rejections under both § 102(e) and § 103(a), Applicants assert that numerous ones of the dependent claims recite further distinctions over the cited art. Applicants traverse the rejections of these claims for at least the reasons given above in regard to the claims from which they depend. However, since the rejections have been shown to be unsupported for the independent claims, a further discussion of the dependent claims is not necessary at this time. Applicants reserve the right to present additional arguments.

In light of the foregoing remarks, Applicants submit the application is in condition for allowance, and notice to that effect is respectfully requested. If any extension of time (under 37 C.F.R. § 1.136) is necessary to prevent the above referenced application from becoming abandoned, Applicants hereby petition for such an extension. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel PC Deposit Account No. 501505/6000-33800/RCK.

Respectfully submitted,
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Date: December 16, 2008